Assignment

Topic: Fundamentals of Solubility Studies

Instructions

- Attempt all questions.
- Write answers in your own words.
- Draw diagrams wherever necessary.

Section A – Short Answer Questions (2–3 marks each)

1. Define solubility.
2. Write any two pharmaceutical importance of solubility.
3. What is intrinsic solubility?
4. What is apparent solubility?
5. Define aqueous solubility.
6. What is meant by lipid solubility?
7. List four factors affecting solubility.
8. What is polymorphism?
9. Write the principle of the shake flask method.
10. What is a pH–solubility profile?

Section B – Short Notes (5 marks each)

1. Importance of solubility studies in pharmaceutical sciences
2. Types of solubility
3. Factors affecting solubility of drugs
4. Biopharmaceutics Classification System (BCS)
5. Applications of solubility studies in drug development

Section C – Long Answer Questions (10 marks each)

1. Define solubility and explain its importance in drug formulation and bioavailability.
2. Explain the factors affecting solubility of drugs with suitable examples.

3. Describe the methods used for solubility determination, including:
    - Shake flask method
    - Equilibrium solubility method
    - pH solubility profile
    - Spectrophotometric method
4. Explain the role of solubility in drug discovery and dosage form design.

Section D – Application Based Questions

1. Why are poorly soluble drugs difficult to formulate? Explain.
2. How does pH affect the solubility of weak acids and weak bases?
3. Why is temperature important in solubility determination?